

BOOK REVIEWS

PAST GLACIAL ENVIRONMENTS: SEDIMENTS, FORMS AND TECHNIQUES; GLACIAL ENVIRONMENTS: VOLUME 2 edited by J. Menzies, Butterworth Heinemann, Oxford, 1996. No. of pages: 598. Price: £40.00. ISBN 0 7506 2352 7.

This book, with its companion volume *Modern Glacial Environments: Processes, Dynamics and Sediments; Glacial Environments: Volume 1*, was written in an attempt to provide a synthesis of modern glacial processes and Quaternary glacial environmental reconstruction. When these books were begun in the late 1980s there was an urgent need for such a book, since the excellent *Glaciers and Landscape* (Sugden and John, 1976) was becoming out of date. Unfortunately, the two volumes were not published until 1995 and 1996, by which time other “glacial” textbooks had appeared (Hambrey, 1994; Bennett and Glasser, 1996); these two volumes nevertheless remain distinctive.

One reason for there being so few glacial textbooks is that glacial geomorphology is such a vast topic, and it is difficult for one or two individuals to cover the whole area in sufficient depth. To overcome this problem, the chapters in this book have each been written by author(s) with different specialisms.

The book opens with an introductory chapter on past glacial environments which provides a very useful summary of scientific advances in glacial geomorphology (10th century until 1986) and discusses current research issues. Complementary to this is a very good chapter on subglacial processes, which is well referenced, very extensive and looks at many different aspects of the subglacial environment in different ways, to provide a valuable synthesis. There are also some very interesting chapters on Pleistocene supraglacial and ice marginal deposits, glaciomarine sedimentation, pre-Pleistocene glaciations, glacial stratigraphy and glaciers and sea-level change. The book also covers topics not usually included in glacial textbooks, such as glacio-aeolian processes, and includes useful chapters on techniques in

glacial sedimentology such as micromorphology, SEM geochronology, and drift exploration.

However, there are a few problems with the book. In places, authors are let down by poor reproduction of some diagrams, some figures are unnecessarily duplicated in colour and black and white, and sometimes the same topics are discussed in different chapters. It also suffers from a typical problem of multi-authored books, in that the depth and quality of the chapters vary. The topics discussed in the book are brought together in the final chapter, and given the diversity of the topics and styles in the book, this concluding chapter is an excellent idea. Within this chapter useful suggestions for future research themes are discussed.

In general, I would say that John Menzies has done a very good job in putting together these two volumes (and writing and contributing to many of the best chapters). Although too expensive for students to buy, I would recommend both volumes to libraries, and certainly recommend that my students read specific chapters. In parts, the book is a little outdated, but in general it does provide a good modern synthesis of past glacial environments and the sedimentological techniques used to investigate them.

References

- Bennett, M. R. and Glasser, N. F. (1996). *Glacial Geology: Ice sheets and Landforms*, Wiley, Chichester, 364 pp.
 Hambrey, M. (1994). *Glacial Environments*, UCL Press, London, 296 pp.
 Menzies, J. (Ed.) 1995. *Modern Glacial Environments: Processes, Dynamics and Sediments; Glacial Environments: Volume 1*, Butterworth Heinemann, Oxford, 621 pp.
 Sugden, D. E. and John, B. S. 1976. *Glaciers and Landscape*, Arnold, London, 376 pp.

JANE K. HART
Department of Geography
University of Southampton

GEOMORPHIC HAZARDS edited by Olav Slaymaker, John Wiley & Sons Ltd, Chichester, 1996. No. of pages: viii+204. Price: £45.00. ISBN 0471962139.

In general, geomorphologists are still trying to catch up with geologists and engineers in linking physical processes with environmental risk assessment and hazard management. Some recent progress is demonstrated in this volume arising from the Third International Geomorphological Conference held at McMaster University, Canada, in August 1993. The book contains 13 chapters by 30 authors. Although over 60

per cent of the contributors are from European countries, predominantly Italy, a wide variety of geographical environments is covered from the Philippines through Siberia and North Africa to Canada and Mexico.

In an introductory chapter, the editor rightly draws attention to the geomorphic significance of low magnitude, high frequency events and this interpretation is reflected in the thematic composition of the book. Despite some case studies of classic rapid-onset hazard events, such as landslides and volcanic eruptions, at least half the contributions deal with longer-term issues of land degradation, especially soil erosion and desertification. Such a balance can be justified

because of the importance of certain human activities, such as land use change, in accentuating geomorphic hazards. But, there is little here to satisfy the disaster specialist. Indeed, the term "disaster" is indexed solely for the two chapters concerned with volcanic events. However, the book is effective in illustrating hazard-related methodologies, including the use of resident oral histories to detect environmental changes in a remote area of British Columbia, as well as the potential application of more conventional geomorphological tools, such as mapping and modelling, in hazard management.

The practical aspects of risk assessment and hazard management are developed in a rather patchy fashion. For example, they are given little attention in a clutch of papers dealing with soil erosion, although an interesting account of water erosion in the Cape Verde Islands links gully incision on the volcanic slopes to the Sahelian drought, as well as to

unwise agricultural practices, and makes the point that remedial measures are heavily dependent on external aid. On the other hand, two papers dealing with volcanic hazards on Mt Pinatubo, the Philippines, and Mt Unzen, Japan, are good examples of how risk zonation surveys can lead to disaster mitigation strategies.

In summary, this volume is a welcome step forward. It also provides a useful signpost for a road along which more geomorphologists will undoubtedly travel in future. The editor has done a commendable job in assembling a set of papers of a high standard and the book is attractively published at a hard-back price which is not unreasonable in today's market.

KEITH SMITH
University of Stirling
Stirling

SOIL AND WATER MANAGEMENT SYSTEMS fourth edition, by G. O. Schwab, D. D. Fangmeier and W. J. Elliott, John Wiley & Sons Inc., New York, 1996. No. of pages: xii+371. Price: £24.95 (hb). ISBN 0-471-10973-8.

The agricultural engineering curriculum in universities and colleges in the USA has traditionally encompassed soil and water engineering. Student needs for a basic text to accompany their courses have been met for many years by the text on *Soil and Water Conservation Engineering*, first published in 1955 under the editorship of R. K. Frevert. A simpler version was produced for use at college level under the title *Elementary Soil and Water Engineering*. This fourth edition of the latter text, under a new title and new authorship, reflects changes in emphasis in the discipline from engineering to management, and from agricultural to broader environmental issues. A more interdisciplinary approach is

adopted, combining engineering, agronomy and biology. Those who are familiar with earlier editions will see that the authors have retained the clear, logical presentation of problems and design procedures. Good use is made of diagrams, nomographs, tables and worked examples. A glossary of essential terms is also provided. The material covers surveying, soil erosion and conservation, water quality, water storage, drainage and irrigation. For those seeking a compromise between an engineering manual and an academic text covering principles but with little practical information, this is ideal. Unfortunately, it remains targeted at the American market. All the information relates solely to the USA and Imperial units are used throughout instead of SI.

R. P. C. MORGAN
School of Agriculture, Food and Environment
Cranfield University